UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/972,929	10/10/2001	Richard C. Rose	109039	4843

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EXAMINER
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ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 09/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/972,929	ROSE ET AL.
	Examiner	Art Unit	
	James S. Wozniak	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 July 2005*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14,16,19 and 21-24* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14,16,19 and 21-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   In response to the office action from 4/12/2005, the applicant has submitted a request for

continued examination, filed 7/12/2005, amending claims 1-2, 4-6, 8-14, and 16, while canceling

claims 15, 17-18, and 20, adding claims 21-24, and arguing to traverse the art rejection based on

the limitation regarding a modifiable periodic background noise sampling time *(Amendment,*

Pages 8-9). The applicant's arguments have been fully considered but are moot with respect to

the new grounds of rejection in view of Kosanovic *(U.S. Patent: 6,157,670)* and Sejnoha *(U.S.*

Patent: 5,008,941).

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

3.   **Claims 1, 5, 9, 13-14, 16, 19, 21-22, and 24** are rejected under 35 U.S.C. 103(a) as being

unpatentable over Gong (U.S. Patent: 6,418,411) in view of Kosanovic *(U.S. Patent:*

6,157,670).

With respect to **Claims 1, 5, 9, and 13,** Gong discloses:

Determining parameters of a background model of a received voice request *(on-line noise compensation, Fig. 1, Elements 19-20; determining background noise parameters, Col. 2, Lines 35-47)*;

Determining parameters of a transducer model *(one time adaptation, Fig. 1, Element 12; and calculating microphone (transducer) characteristics, Col. 1, Lines 59-62)*;

Determining an adapted speech recognition model for a speech recognition model based on at least one of the background model and the transducer model *(producing an adapted model based on the inputs from the on-line noise estimation and the one-time adaptation (transducer adaptation), Fig. 1, Element 20 and Col. 2, Lines 44-50)*.

Determining information in the voice request based on the adapted speech recognition model *(steps 4 and 5, Col. 2, Lines 58-61)*;

Although Gong teaches the means for determining background noise model parameters, Gong does not teach that background noise is determined at a periodic time that can be adjusted based at least in part on determined changes in sampled noise information, however Kosanovic discloses an adjustable background noise update period based on a noise signal energy *(Col. 3, Lines 40-65)*.

Gong and Kosanovic are analogous art because they are from a similar field of endeavor in speech signal processing utilizing background noise estimation. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Gong with the adjustable background noise update period taught by Kosanovic in order to

provide a means for obtaining background noise data according to a desired accuracy

(Kosanovic, Col. 3, Lines 52-65).

With respect to **Claim 14**, Gong recites:

Determining user specific parameters of a background model for a received voice request

(on-line noise compensation, Fig. 1, Elements 19-20; determining background noise parameters,

Col. 2, Lines 35-47; and speaker-adapted models, Fig. 1, Element 12).

Determining parameters of a background model of a received voice request *(on-line noise*

compensation, Fig. 1, Elements 19-20; determining background noise parameters, Col. 2, Lines

35-47);

Determining parameters of a transducer model *(one time adaptation, Fig. 1, Element 12;*

and calculating microphone (transducer) characteristics, Col. 1, Lines 59-62);

Determining an adapted speech recognition model for a speech recognition model based

on at least one of the background model and the transducer model *(producing an adapted model*

based on the inputs from the on-line noise estimation and the one-time adaptation (transducer

adaptation), Fig. 1, Element 20 and Col. 2, Lines 44-50)..

Determining information in the voice request based on the adapted speech

recognition model *(steps 4 and 5, Col. 2, Lines 58-61)*;

Although Gong teaches the means for determining user specific background noise model

parameters, Gong does not teach that background noise is determined at a periodic time that can

be adjusted based at least in part on determined changes in sampled noise information, however

Kosanovic discloses an adjustable background noise update period based on a noise signal

energy *(Col. 3, Lines 40-65).*

Gong and Kosanovic are analogous art because they are from a similar field of endeavor

in speech signal processing utilizing background noise estimation. Thus, it would have been

obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings

of Gong with the adjustable background noise update period taught by Kosanovic in order to

provide a means for obtaining background noise data according to a desired accuracy

(Kosanovic, Col. 3, Lines 52-65).

With respect to **Claim 16**, Gong recites;

Sampling periods of speech inactivity while receiving the voice request *(speech pauses,*

Col. 5, Lines 29-32).

With respect to **Claim 19**, Kosanovic recites:

Constantly determining the parameters of the background model while receiving the

voice request *(Col. 1, Lines 60-63).*

With respect to **Claims 21 and 24**, Kosanovic discloses:

Dynamically determining the periodic time based, at least in part, on a magnitude of

determined changes in the sampled noise information *(Col. 3, Lines 40-65).*

With respect to **Claim 22**, Kosanovic recites:

Increas9ing the periodic time when successive changes in sampled noise information

does not exceed a threshold value *(Col. 4, Lines 20-26).*

4.   **Claims 2-4, 6-8, 10-12, and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable

over Gong in view of Kosanovic, and further in view of Sejnoha *(U.S. Patent: 5,008,941).*

With respect to **Claims 2, 6, and 10**, Gong in view of Kosanovic teaches the speech

recognition system utilizing background noise and transducer models, as applied to Claims 1, 5,

and 9. Gong in view of Kosanovic does not specifically suggest that a transducer model is

updated periodically, however Sejnoha teaches such a periodic transducer model update (Col. 3,

Lines 5-67; Col. 6, Line 41- Col.7, Line 17).

Gong, Kosanovic, and Sejnoha are analogous art because they are from a similar field of

endeavor in speech signal processing utilizing noise estimation. Thus, it would have been

obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings

of Gong with the means for periodically updating a transducer model as taught by Sejnoha in

order to implement more accurate speech recognition by tracking and compensating for time

variant parameters that can degrade recognition performance *(Sejnoha, Col. 3, Lines 5-17)*.

With respect to **Claims 3, 7, and 11**, Gong additionally discloses:

The parameters of the background model are determined based on a first sample period

(sample period for background noise estimation, Fig. 2, Col. 5, Lines 29-32).

The parameters of the transducer model are determined based on a second sample period

(sample for a transducer model during a one time adaptation, which takes place before on-line

adaptation and thus, inherently requires a second, distinct sampling period, Col. 5, Lines 23-28).

With respect to **Claims 4, 8, and 12**, Gong additionally discloses:

Saving at least one of the parameters of the background model and the parameters of the

transducer model *(background noise is recorded and estimated, Col. 2, Liens 43-44)*;

Determining the adapted speech recognition model based on the at least one sample

period and at least one of the background model and the transducer model *(after noise sampling,*

the system then proceeds to produce an adapted model based on the inputs from on-line noise

compensation, Fig. 1, Element 19; and one-time adaptation (transducer adaptation), Fig. 1,

Element 20; and Col. 2, Lines 44-50).

With respect to **Claim 23**, Sejnoha teaches the means for periodically determining

transducer data as applied to Claims 2, 6, and 10.

Conclusion

5.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure:

DeJaco et al *(U.S. Patent: 5,915,235)*- teaches a means for sampling a transfer function
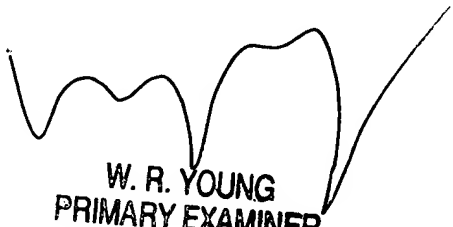
of an input transducer.

Diethorn (U.S. Patent: 6,035,048)- teaches a means for adding delay to a periodic

background noise update.

6.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632.

The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Wayne Young can be reached on (571) 272-7582. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James S. Wozniak
8/10/2005

W. R. YOUNG
PRIMARY EXAMINER